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Biofuels Annual

Biofuels Sector Update

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Report Highlights:

As one of the world's leading producers and exporters of oil and gas, biofuels have an insignificant share of the overall energy production matrix of Russia, with an estimated 0.9 to 1.2 percent, and biomass accounting for 0.5 percent. The emerging Russian biofuels industry is driven primarily by growing demand from Europe.

Post:
Moscow

Commodities:

Executive Summary:

The Russian government outlined as a national objective to make the country 40 percent more energy-efficient by 2020. While there have been vague attempts at the federal level to promote the production of biofuels, there are a growing number of activities at the regional level. A number of innovative projects aimed at production of alternative energies from feed stocks such as plant cellulose (including wood), oilseeds, and agricultural wastes, have begun to be implemented. In addition, the production of biofuel raw materials for export (including fuel pellets, rapeseed, and rapeseed oil) has increased. The emerging Russian biofuels industry's export orientation is driven by the continued growing demand for biofuels in Europe and Asia. The production of biofuels, however, is still small and has no impact on Russia's domestic grain and oilseed prices. Experts believe that without government support the biofuels sector will remain insignificant in Russia.

Due to its abundance of petroleum and natural gas, Russia produces small amounts of biofuels and has minimal domestic demand. Current biofuels projects in operation are mostly supported by regional governments and financed by foreign investors. In most cases they are pilot research projects that produce small amounts of biofuels for generating heat and/or electricity for a facility. Currently there is no industrial production of either bioethanol or biodiesel in Russia. Different sources estimate the share of renewable energies, including biofuels, in the overall energy production matrix of Russia at only 1.2 percent, with biomass accounting for 0.5 percent.

In late June, the Russian Ministry of Energy and Chinese National Bioenergy Company signed an agreement on setting up a joint venture that will construct wood pellet production facilities in Russia. It is planned that wood waste and biomass will be used as the raw material and the objective of the project is construction of electrical power stations that will work on different types of biomass for generating heat and electrical energy. The project would allow Russia to increase energy capability in the rural territories of Russia, 70 percent of which do not have centralized energy supply. Experts believe that the implementation of the project will help control prices of traditional energy carriers and weaken dependency on fossil fuels.

According to the Russian Bioenergy Agency, there are pilot projects in place in 14th Russian regions on construction of biogas facilities for processing agricultural waste. In addition, 52 regions are in the process of developing business plans to implement similar pilot projects. According to the deputy Minister of Agriculture Shamil Vakhitov, "it is necessary to develop a complex program for further development of bioenergy in Russia, including mechanism for government financial support and legislative regulations."

Author Defined: Policy and Programs

Russia is still in the initial stage of establishing regulatory norms for bio energy development and standards for biofuels. The government is slow in developing legislative norms for stimulating biofuel production in Russia. Experts believe that without government support and other development policy

measures the sector is deemed to fail.

The Russian Government passed a resolution in January 2009 that established priorities of government policy in the sphere of renewable sources of energy up to 2020 and outlined its objective to make Russia 40 percent more energy-efficient by 2020. Targeted indicators are also set in applying renewable sources in electrical energy sector.

The government has started to pursue this target by replacing incandescent bulbs for more energy-efficient lights. The government plan stipulates the need to support small energy-generating projects, like biofuels, by instituting a reasonable tax policy and subsidized interest rates. Currently there are no incentives to make energy projects economically feasible.

According to the new plan developed by the Russian Ministry of Energy on the use of new and existing power capacity until 2030, new low-capacity power plants will produce up 1.1 gigawatts (GW) in 2021 to 2025, and another 2 GW by 2030. Total new capacity planned before 2030 is 173 GW, with 6.1 GW share from renewable energy sources that will account only 2 percent out of the total 324 GW capacity by 2030.

However, experts believe that it will be difficult to fulfill the objective of such an increase, unless the government passes a law that will require grid operators to first purchase the power from generators using renewable resources.

The next step of the government is to improve legislation on waste management that will require timber mills to send the waste to a biomass powered generator.

Currently there are two major legislative acts in place that stimulate the development of renewable energy sources in Russia: 1) Federal Law "On Electrical Energy Industry" that identifies types of renewable energy resources and authorities of the government of the Russian Federation in the sphere; 2) Government Resolution on the priorities through 2020 for increasing energy efficiency from renewable sources adopted by the Russian Government on January 8, 2009. The new resolution indicates a number of measures that are aimed at improving electrical power originating from renewable sources.

Most specialists believe that the Russian government's achievements by 2020 will be modest:

- Higher construction costs of the facilities producing alternative energy in comparison with fuel-burning power plants. The equipment for facilities producing alternative energy has to be imported as domestic equipment production lags behind.
- Domestic electricity network is not adapted to support operation of the facilities for alternative energy.
- Lack of financial support from the federal government. The government is focused on developing programs for energy efficiency rather than biofuels.

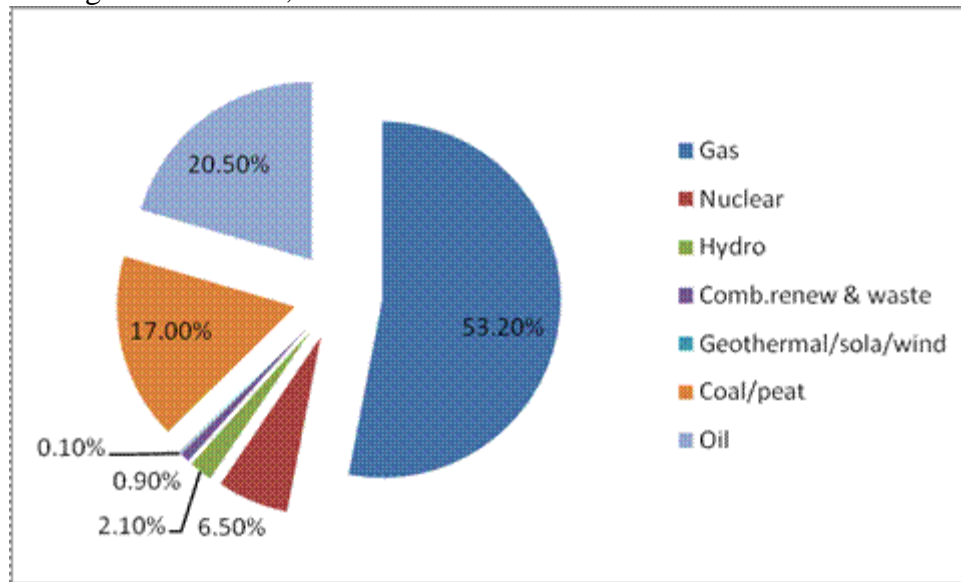
The rising costs for energy resources and electricity has prompted the government to be more proactive in adopting more solid legislative base for stimulating production of alternative resources. Three more legislative acts related to production of alternative energy in Russia are currently under consideration by the Russian government: 1) Resolution on the Order of capacity added for power-producing facilities; 2)

Resolution on criteria for distribution federal government subsidies to compensate connection cost to facility producing renewable energy resources; 3) Resolution that stipulates order and procedures for registering of green certificates. However, these drafts are not on a particular timetable and are unfunded. It is uncertain if they will make it through the legislative process and become policy in the near future.

Experts also believe that Russia has great potential in developing wind energy, although currently, biomass has more potential in terms of economic efficiency given Russia's enormous forestry resources.

Graph 1: Russia: Share of Total Primary Energy Supply in 2008

Total generation: 686,757 ktoe



Source: International Energy Agency (latest data available).

Status of Bioethanol/Biodiesel Projects

To date there are no official statistics on bioethanol and biodiesel production, consumption and trade. Different sources estimate the share of biofuels production in overall energy production matrix of Russia is 1.3 percent.

Production of bioethanol in Russia can become profitable only if the Russian government abolishes the excise tax. High excise taxes on alcohol limits the production of bioethanol for domestic use.

Bioethanol is classified under the general alcohol category, and

Russian legislation does not distinguish bioethanol from other alcohols intended for beverages. This contrasts sharply with other nations, where bioethanol is usually exempt from excise duties. However, the Russian government has not moved in this direction yet due to the influence of the oil industry.

Production of bioethanol can be produced for export only since it is exempt of the excise tax.

The development of the biofuels sector is not stipulated in the National Agricultural Priority Project, and without lack of government support, the sector is likely doomed to fail. The major reasons for the lack of interests are the high cost of biodiesel, ambiguous government policy towards biofuel producers,

insufficient domestic demand and poor machinery not adapted to biodiesel use. Higher prices of wheat and oilseeds worldwide are also making biofuels production less profitable.

The head of the state corporation “Rostech” Sergey Chekmezov recently announced the start for construction of the first large facility for biofuels production primarily from wood waste and sawdust. The corporation is constructing a plant that will produce bioethanol in Tulun, Irkutsk oblast.

Biomass

The long-term plan for developing the forestry sector by 2020 is to substantially increase production of value-added forestry products. While not a priority, the Federal Forestry Agency has considered an increase in biomass production as the main alternative for developing Russia’s biofuel sector. Recently the Agency has developed a list of priority projects for biofuel production. There are currently 20 investors from different regions in Russia that will develop biofuels production in the near future. The program foresees 25.8 billion rubles of investments in forestry sector related to biofuel production for the period of 2009-2016 (see table 1 below). According to the program, total timber consumption is estimated at 8.3 million cubic meters, while area of allowable cut is 7.9 million cubic meters.

Russia’s northwestern region offers significant potential for production of bioenergy for export to European markets. Analysts estimate that current forestry producers use 40 percent of their allowable forestry cut in the northeast. Total actual annual harvest is not more than 200 million cubic meters from a potential 500 million cubic meters of allowable annual cut.

The Russian forestry sector produces about 14-15 billion MT of biomass per year, equivalent to 8 billion Toe. Various experts estimate that Russia can use up to 800 million MT of wood biomass for energy production. In the European part of Russia alone experts estimate annual wood waste at 17 million MT equivalent to 4 million MT of wood pellets. Total wood waste volumes at forestry processing facilities vary considerably from 5 to 60 percent depending on the processing technology of the plant. A small number of forestry facilities utilize wood waste at the facility to generate energy and heat; while other facilities supply wood waste and saw dust to larger neighboring forestry plants or paper mills. However, to date the majority of wood waste is not being used due to lack of special equipment, modern technologies and the lack of government incentives and foreign investments.

Wood Pellets

According to Russian Statistics Service, Russia produces 325,000 MT of wood pellets. Different sources estimate that actual wood pellet production is at least 3-4 times higher than official data. The number of processing wood pellets facilities in Russia vary from 140 to 150, with a total annual production capacity of about 1.3 million MT. Trade sources report construction of more 50 wood pellet facilities is likely to occur in the near term primarily as side production capacities at medium and larger wood processing plants.

The majority of the facilities are located in the Northwest, Central and Volga regions of Russia. About 80-85 percent of their total pellet production is exported to Europe. The forecast for 2012 calls for increasing wood pellet production mostly driven by greater demand from the EU market stimulated by EU Decision along with Russian government initiatives calling for an increase in the forestry sector efficiency.

Trade sources also report that a number of new wood pellet production facilities are being constructed in different regions of Russia, mostly in the Northwest because of its proximity to Europe. A large facility is set to start processing wood pellets in the St. Petersburg area, Vyborg Cellulose. Its production capacity is estimated at 1 million MT annually. A new facility started operation in Vetluga by the end of 2010 with a pellet production capacity of 15-20 thousand MT. One of the largest facilities for wood pellet production, Vologdabioexport, is located in Vologda oblast, with a production capacity of 50,000 MT annually.

In 2010, a slight decrease in prices for wood pellets in Europe had an adverse impact on pellet production in Russia. One of the largest wood pellet facility “Vologdabioexport” with annual capacity of 50,000 MT has shut down temporarily. Trade sources reported of other pellet facilities in Northwestern part of Russia that had to stop their production as a result of price fluctuations for pellets in Europe. The most common reason behind production shut down for most of the facilities is the lack of their own timber processing plants. As domestic prices for raw material, such as wood waste increase, along with lowering prices for wood pellets in Europe, it makes processing less cost efficient.

However, demand for wood pellets domestically is forecast to increase but at a modest pace. Experts estimate production of wood pellets are in most cases cheaper than gas, however, lack of domestic standards for pellets, poor transport infrastructure, warehouses, and the product seasonality will negatively impact the wood pellet market development in Russia.

It is estimated that about 2000 boilers in private houses around Moscow and St. Petersburg use wood pellets, and only 1,625 municipal heating boilers. Experts estimate that Russia’s potential to supply wood pellets for 72,000 heating stations.

Recently approved EU Directive establishes an increasing share of renewable sources of energy in electricity production to 20 percent by 2020. The decision will trigger substantial growth in the pellet market worldwide in the near-term. Growing production will be also driven by increasing demand in Asia. Current estimate of annual wood pellet market capacity in Europe is 9 million MT. Experts report demand for wood pellets in the near term to increase by 8-10 percent. The largest consumers of wood pellets are Netherlands and Belgium with 6 million MT annually, followed by Sweden with 1.5 million MT. Sweden, Germany, Denmark and Great Britain will continue to be leading wood pellets producers and consumers. The forecast for 2020 calls for a major increase in demand from the European market, rising to 20-22 million MT annually. EU experts estimate Russia’s share of the EU import market in 2010 at 20 percent. Russia has a large export potential and European pellet demand will likely stimulate an increase in production. Russia will require large investments to upgrade facilities and expand production capacity; additionally domestic demand could absorb some of the increased near-term production.

According to trade sources, most Russian factories process wood pellets destined to Europe in conformity with DINplus quality norms approved by the EU. Trade sources report that EU currently does not require certification for the Russian wood pellets as long as the product is manufactured in compliance with DINplus. Traders believe that an implementation of new standards to quality and technologies for production of fuel pellets in Europe would not affect Russian producers since physical and chemical indicators of raw material in Russia and Europe are identical. Therefore they believe it will not be hard to obtain an EU certification for the Russian plants exporting wood pellets.

Table 1. Status and Capacity of Pellet Production Facilities in Russia, 2011

Name of the Facility and Region	Capacity, MT/per year	Status
“Dots Plus”, Braynsk oblast	9,000	In operation since 2010 (investment 6.9 billion rubles)
OOO “Stod”, Tver oblast	60,000	In operation since 2010
JSC”ABA”, Omsk oblast	20,000	In operation since 2010
OOO “Pechora Enrgy Resource”, Komi Republic	10,000	In operation since 2011 (total project investment 1.25 billion rubles)
OOO “Center Wood Com”	100,000	Will start operation in 2012 (total investment 2.78 billion rubles)
JSC “Eastern Siberia Facility of Biotechnologies”	106,000	Is scheduled for 2013, (investment 1 billion rubles)
OOO “Ural Siberian Investment”, Sverdlovsk oblast	27,000	Scheduled for 2013 (total investment 1.1 billion rubles)
OOO “LesProm”, Kaluga oblast	33,600	By the end of 2011, investment 1.2 billion rubles
ZAO “Novoyeniseyskiy forestry”, Krasnoyarsk kray	40,000 in 2010-2012 80,000 by 2012	In operation since 2010

Source: www.wood-pellet.com

Table 2. PS& D for Fuel Pellets

PS & D for Fuel Pellets						
1,000 Metric Tons						
CY	2007	2008	2009	2010	2011	2012
Production	670	731	967	1,320	1,590	1,900
Imports	0	0	0	0	0	0
Exports	490	511	707	990	1,220	1,470
Consumption	190	220	260	330	370	430

Rapeseed Production

Russia’s production of the major oilseed crops (sunflower, soybean and rapeseeds) is forecast to rebound in 2011. Rapeseed production is forecast to increase more than a quarter to 0.85 MMT. Area sown to winter rapeseed remains small but is growing steadily, driven by increasing demand for rapeseed and rapeseed oil by EU directive and improving infrastructure for rapeseed production and processing. Yields of winter rapeseed are almost two times higher than yields of spring rapeseed. Spring rapeseed may be sown over a bigger territory than last year, but the total winter and spring area will hardly exceed 0.8 million hectares.

In 2010 Russian exports of rapeseeds almost entirely stopped as a result of high export duties (15 percent for rapeseed) and were replaced by exports of rapeseed oil. Nearly all of the 0.9 MMT of rapeseed oil exported goes to the EU, and most of that is for biofuels.

Please refer to GAIN RS1115 Annual Oilseeds and Products for more details.

Notes on Statistical Data

Bioethanol and biodiesel production in Russia is very small. There are no official data for these products in Russia. Production and trade data for wood pellets is based on GTA, Official Russian Federal Customs Service, and estimates of the FAS offices in EU. The trade data for wood pellets may not correspond to the EU data since there is no HS Code for wood pellets alone in Russia. Currently it is subsumed under HS 440130. FAS/Moscow based its estimates on figures of National Biofuels Association, sources from research, analytical institutions as well as agricultural trade sources.

ANNEX

Petroleum, Natural Gas and Coal Based Energy Market

According to reports of the Russian Ministry of Economic Development (MED), in 2010 the production and distribution of fuel and energy resources have increased by 7 percent and are estimated at 102.5 percent of production levels in 2009. The upward trend is attributed primarily to the increased production of gas and coal. Production volumes for oil, including gas condensate, in January-October 2010 are estimated at 419.8 million MT, an increase of 1.7 percent over the same period in 2009. The MED reports that 50 percent of all Russian oil production companies have demonstrated positive dynamics in oil production in 2010. The leading companies in production of oil in 2010 was “NK Rosneft” – with a growth of 6.5 million MT, due to rapid buildup of oil production in Vankorsk oil deposit. New oil deposits in Republic of Sakha and decreasing export tariff for eastern Siberia and Caspian oil deposits also attributed to positive dynamic in oil production.

The forecast for 2010-2011 calls for a continued increase in the oil production sector due to new field developments and stronger demand in domestic and international markets.

Table 1: Russia: Production and Distribution of Electrical Power in 2010.

	2010	As a percent of 2009
Production and distribution of electrical power		104.5
Electrical power, billion kVT/h	1037	104.7
Including produced by:		
Electrical power stations		
Nuclear power plant	170	104.1
Thermal power plant	699	107.3
Hydroelectrical power station	168	95.6
Production and distribution of steam and hot water (thermal energy)		
Thermal energy, million Gcal	1355	103.0
Including produced by:		

Electrical power stations	611	102.9
Heating (boiler) plants	659	102.6
Waste-heat utilization plant	74.5	106.7
<i>Source: Federal Statistics Service of the Russian Federation</i>		

Graph 1: Russia: Dynamics of Oil Production, including Gas Condensate, January-December 2008-2010, in percent, (December 2006 – 100 %).



Source: Official report of the Ministry of Economic Development (MED), 2011

In 2010, total gas production is estimated at 650.7 billion m³, 11.6 percent higher than in 2009. In Jan.-October 2010, Gazprom companies produced 441.85 billion m³; oil companies and other independent producers – 114.1 billion m³. Production of gas in 2010 leveled off in comparison of its drop in 2009 as a result of recovering demand in the domestic market, specifically in energy and chemical and agrochemical sectors; as well as growing exports to CIS countries. Total export of gas in 2010 is estimated at 181.9 billion m³.

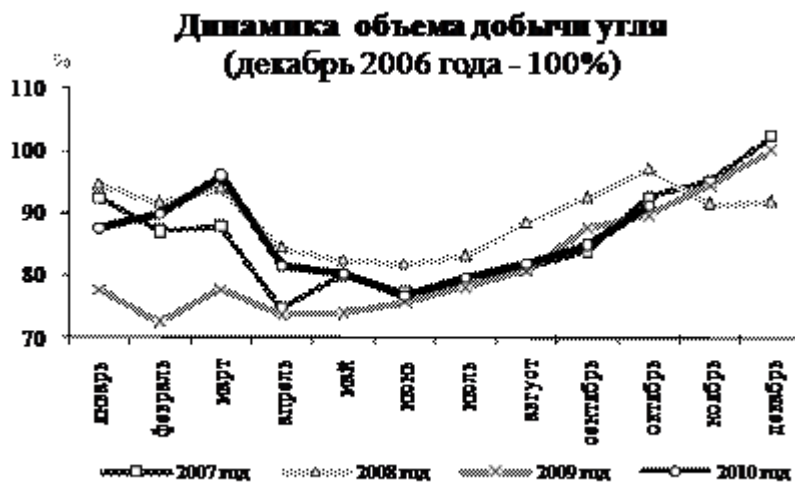
Graph 2: Russia: Dynamics of Natural Gas Production, Jan.-Dec. 2008-2010, in percent (Dec. 2006 – 100%).



Source: Official report of the Ministry of Economic Development, 2011 (MED).

In January-October, 2010, coal production has demonstrated growth and is estimated at 298.5 million MT in comparison with the same period in 2009. Experts attribute upward tendency in coal production in 2010 in comparison with 2009, to stronger demand at both domestic and international markets followed by economic downturn and improving foreign economic conditions. Leading regions for coal production in Russia continue to be Siberia, Far East, and North-western Federal district.

Graph 3: Dynamics for Coal Production, Jan.-Dec. 2007-2009, percent (Dec. 2006 – 100 percent)



Source: Official report of the Ministry of Economic Development, 2010 (MED)

In 2010, Russia produced 1037 billion kW/hour of electrical power, an increase of 4.7 percent versus 2009. Share of electrical energy, generated by thermal power station in the total electricity production increased from 65.7 percent in 2009 to 67.3 percent in 2010, while share of electrical energy generated by nuclear and hydro power stations decreased from 16.5 percent to 16.4 percent and from 17.8 to 16.2 percent respectively.

Electrical power production increase in 2010 is attributed to increasing expansion rate in major electric consuming industries and cold weather conditions in 2010 “heating season” as well as abnormally high temperatures in summer 2010.

Graph 4: Russia: Dynamics of Electrical Power Production, Jan.-Dec. 2007-2009, percent (December 2006 - 100 %)



Source: Official report of the Ministry of Economic Development, 2011 (MED)

Table 2: Russia: Production of Major Energy Sources, 2010

	2009	2010	As a percent of 2009
Electricity, billion kWh	992	1037	104.7
Production of oil with gas condensate, million MT	494	505	102.1
Primary oil processing, million MT	236	249	105.5
Automobile gasoline, million MT	35.8	36.0	100.5
Diesel Fuel, million MT	67.3	69.9	104.2
Bunker oil, million MT	64.4	69.5	108.5
Production of natural gas, billion m ³	584		
Coal production, million MT	298	317	105.4

Source: Ministry of Economic Development of the Russian Federation, 2010

Table 3: Russia: Distribution of petroleum products in 2007-2009, 1, 000 MT.

	2008	2009	2010
Automobile Gasoline			
Resources	32,623	36,104	36,377
- production	32,462	35,850	36,014
- imports	205.7	222.9	498.1
- change of stocks	+44.6	-30.7	+134.8
Use			
- sales in the domestic market	28,456	31,602	32,858
- - - through gas stations	25,133	28,634	31,693
- exports	4,167	4,501	3,519
Diesel Fuel			
Resources	62,749	67,384	70,289
- production	62,902	67,063	69,891
- imports	221.0	257.3	516.5
- change of stocks	+374.1	63.5	+119.0
Use			
- sales in the domestic market	28,602	27,563	28,750
- exports	34,147	39,821	41,539
Bunker Oil (Mazut)			
Resources	62,520	72,372	78,440
- production	62,142	72,331	77,663
- imports	257.2	313.0	870.4
- change of stocks	-121.5	+272.2	+92.4
Use			
- sales in the domestic market	10,811	8,255	6,417
- exports	51,709	64,117	72,023
<i>Source: Social-Economic Situation in Russia (Monthly statistics of the Federal Statistical Service), January 2010, January 2011</i>			

Table 4: Russia: Production of Oil and Major Oil Products January - May 2011.

Indicators	Jan.-May 2011	+/- Jan.-May 2010
Oil (1,000 MT)		
Production of oil with gas condensate, million MT	210,682	2,607
Sales in the domestic market	104,427	3,767
Exports	100,975	-1,777
Primary processing of oil raw material domestically	104,099	3,596
Production of major oil products (1,000 MT)		
Gasoline	14,409	-43.8

Diesel Oil	29,332	688.4
Crude oil	29,927	1,396
Jet fuel	3,453	42.9
Gas (mln. m3)		
Production (total) :	297,601	8,437
including Gazprom	230,302	1,644
Domestic consumption	225,056	-13,702
Export	94,387	14,909
Coal (1,000MT)		
Production	134,027	849.8
Total supply	127,889	500
Including export	42,723	2,473
Electricity		
Total Electricity generation (million kW/hr)	454,800	5,800
Production of heat energy (1,000 G/kl)	280,300	-7,600
<i>Source: Ministry of Energy of the Russian Federation</i>		

Abbreviations and Definitions

Biodiesel = Fatty acid methyl ester produced from agricultural feedstock (vegetable oils, animal fat, recycled cooking oils) used as transport fuel to substitute for petroleum diesel

= Ethanol produced from agricultural feedstock used as transport fuel

Mtoe = Million tons of oil equivalent

MWh = Mega Watt hours = 1,000 Kilo Watt hours (KWh)

Toe = Tons of oil equivalent = 41,868 MJ = 11.63 MWh

Btoe = Billion Tons of oil equivalent

Gcal = Giga calories

1 Toe = 41.87 GJ

1 MT Gasoline = 1,342 Liters = 1.03 Toe

1 MT Ethanol = 1,267 Liters = 0.64 Toe

1 MT Diesel = 1,195 Liters = 1.02 Toe

1 MT Biodiesel = 1,136 Liters = 0.90 Toe

Related Reports

Title	Date
RS1070 Feed Sector Update	12/18/2010
RS 9037 Biofuels Annual	6/01/2010
RS1113 Grain and Feed Annual	05/17/2011
RS1115 Oilseeds and Products	03/31/2011

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